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(54) Titre : APPAREIL DE MASSAGE DES PIEDS A LA PIERRE CHAUDE

(54) Title: HOT STONE FOOT MASSAGER

(57) Abrégé/Abstract:

A foot massager providing a heated stone therapy is provided. The foot massager has a housing, a vibration mechanism, a heater, first and second foot receiving stations, and first and second therapeutic stones for providing a heated stone therapy massage. The first and second therapeutic stones are disposed on the first and second foot receiving stations for delivering heated stone therapy to the user's feet that are disposed in the first and second foot receiving stations.



## ABSTRACT OF THE DISCLOSURE

5        A foot massager providing a heated stone therapy is  
provided. The foot massager has a housing, a vibration  
mechanism, a heater, first and second foot receiving stations,  
and first and second therapeutic stones for providing a heated  
stone therapy massage. The first and second therapeutic stones  
10 are disposed on the first and second foot receiving stations for  
delivering heated stone therapy to the user's feet that are  
disposed in the first and second foot receiving stations.

## HOT STONE FOOT MASSAGER

### BACKGROUND OF THE INVENTION

#### 5    1. Field Of the Invention

The present invention relates to a foot massager. More particularly, the present invention relates to a foot massager having first and second therapeutic stones to provide a heated  
10    vibratory therapeutic massage to a user's feet.

#### 2. Description of the Prior Art

Message units that employ movable ball-like members to  
15    massage the feet are well known in the art. Various types of vibratory massagers for the feet are known in the art. U.S. Patent No. 5,215,078 to Fulop describes a massager having a motor driven eccentric cam that drives a moving member in a reciprocating fashion to provide a massaging action to a user.  
20    Typically, the foot massagers rely upon different massaging contours to achieve desired massaging sensations. When a number of vibrating contours that usually are disposed on a top side of the foot massager are applied to the user's feet, the desired massaging sensations are achieved.

25

The prior art foot massagers are limited to delivering only vibratory sensations and heated sensations to the user. However, a user desires a foot massager that delivers more including a wide range of massaging sensations to alleviate  
30    stress, anxiety, and for recreational purposes. A user desires a therapeutic hot stone massage comparable to a holistic, spa-

like massage that can only be found at expensive resorts or exclusive spas to rejuvenate and relax the user.

Various mineral baths and prior art stone therapy uses  
5 heated and cooled therapeutic stones to penetrate deeply heating  
and cooling sensations into a user's skin for increased blood  
circulation and attendant beneficial effects. Stone massage  
therapy rejuvenates the user's body by using heat transferred  
10 through the therapeutic stone to increase and facilitate blood  
circulation through the user's skin, muscles and tissues. This  
procedure provides placing heated stones on the body, back,  
muscle tissues and skin of the user at specific predetermined  
locations to facilitate circulation, massage, rejuvenate and  
relieve arthritic pain and certain dermatological conditions at  
15 these predetermined locations.

The therapeutic stones may be selected from any suitable  
size or shape depending on the location of application or the  
location that the user's desires the therapeutic stone massage  
20 therapy such as the toes, back, feet or hands. A drawback is  
that the therapeutic hot stone massage is typically not  
portable. Users may travel for extended periods for the desired  
therapeutic hot stone massage. Stone massage therapy is  
reserved for luxury spas, resorts, masseuses, and holistic  
25 therapy purposes and can be inconvenient as well as highly  
costly. The therapeutic hot stone massage is typically not cost  
effective for the consumers of the mass market.

Thus, it is desired to provide a portable vibrating foot  
30 massager that produces a therapeutic hot stone massage that is  
comparable to an expensive, luxurious masseur and that is capable

of producing therapeutic hot stone massage sensations, in a portable manner to the user's feet and soles.

#### SUMMARY OF THE INVENTION

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It is an object of the present invention to provide a foot massager that provides a therapeutic hot stone massage.

10 It is another object of the present invention to provide a foot massager that has a foot receiving station and a therapeutic stone.

15 It is a further object of the present invention to provide a foot massager that has at least two foot receiving stations and at least two therapeutic stones, one disposed in each of the at least two foot receiving stations.

20 The present invention includes a foot massager having a vibrating mechanism and a heater. The foot massager has a housing and preferably at least two foot receiving stations disposed on the housing. At least one therapeutic stone is disposed in each of the two foot receiving stations. In combination, the at least one therapeutic stone delivers a therapeutic hot stone massage to the user's feet. The foot  
25 massager may also include a heating device, preferably an infrared therapy device. The present invention allows the user to apply the user's feet on the foot receiving stations for a therapeutic hot stone massage, infrared therapy or a combination thereof for an improved, luxurious, deluxe massage.

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The above and other objects, advantages and benefits of the present invention will be understood by reference to the detailed description provided below and the accompanying drawings.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be better understood with reference to the following detailed description of the present  
10 teachings when viewed in conjunction with the accompanying drawings.

Fig. 1 is a top view of a foot massager according to the present invention;

15

Fig. 2 is a perspective view of the foot massager of Fig. 1,, but opened to view the interior thereof;

Fig. 3 is another exploded view of a portion of the foot  
20 massager of Fig. 2;

Fig. 4 is another exploded view of a portion of the foot massager of Fig. 2;

25 Fig. 5 is a schematic view of the foot massager of Fig. 1;

Fig. 6 is a top view of the control panel of the foot massager of Fig. 1;

30 Fig. 7 is another preferred embodiment of the foot massager of Fig. 1;

Fig. 8 is yet another preferred embodiment of the foot massager of Fig. 1; and

5 Fig. 9 is an electrical schematic of the foot massager.

#### DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings and particularly to Fig. 1, there  
10 is provided a foot massager generally represented by reference numeral 10. Foot massager 10 has a housing 20 with a top surface 105, a foot receiving station, preferably a first and a second foot receiving stations 30, 40, and a therapeutic stone, preferably first and second therapeutic stones 45, 50 disposed  
15 on the first and the second foot receiving stations 30, 40, respectively. The foot massager 10 also has a control panel (not shown) for controlling massaging action and heating action of the foot massager 10 and to preferably to allow the user to selectively control the relaxing and therapeutic heated stone  
20 massage.

Preferably, housing 20 may be a substantially rectangular member and may have a number of suitable internal ribs (not shown) to maintain the structural integrity of the housing.  
25 Housing 20 may have an exemplary U shaped handle 60 for carrying the housing 20. Handle 60 is preferably disposed at an end of housing 20 to allow a user to grasp the handle for transport. Handle 60 may be connected to housing 20 by any method known in the art or may preferably be a unitary member with the housing  
30 20. Housing 20 preferably has a lateral side that is substantially flat for standing the housing 20 on one end.

Handle 60 may also have a grip section 125 disposed on the exterior surface of the handle 60 and preferably have a number of gripping notches (not shown) disposed on grip section 125 to facilitate grasping of handle 60 by the user.

5

Referring to Fig. 2, housing 20 has an interior for receipt of a vibrating mechanism 65 and a heater 70. Housing 20 has a molding 75 preferably disposed on an interior surface 22 of housing 20. Molding 75 is in spaced relation to the first and second foot receiving stations 30, 40. Molding 75 may be any suitable structure known in the art for holding and impeding the movement of the vibrating mechanism 65.

Housing 20 may be made from a suitable material, such as, for example a thermoplastic having a hollow interior. Housing 20 is intended to be of a suitable size to allow a user to rest his or her feet on topside thereof. However, housing 20 may be any suitable shape including a triangular shape, a spherical shape or an oblong shape.

20

Referring to Fig. 3, in a preferred embodiment of the present invention, vibrating mechanism 65 has a motor 80, an output shaft 85 connected to the motor, and an eccentric weight 90 connected to the output shaft. Thus, motor 80 has a motor output shaft that is connected to one end of output shaft 85, which in turn is connected to eccentric weight 90. Preferably, motor 80 also has an input coil and an output coil. The input coil of motor 80 is electrically connected to a power supply 95 by a wire. When motor 80 is energized with power, the motor 80 rotates output shaft 85 and eccentric weight 90 is rotated. Vibrating mechanism 65 may be housed in the interior of housing



20 in any suitable location in order to transfer a vibrating sensation to the user's feet disposed in the first and second foot receiving stations 30, 40. The motor 80 and eccentric weight 90 generate a vibration in housing 20 to the user's feet that are disposed in the respective first and second foot receiving stations 30, 40.

Referring again to Fig. 2, disposed in spaced relation below the first and second foot receiving stations 30, 40 in the interior of housing 20 is a cradle 100. Cradle 100 is preferably a horizontal, rectangular member that is in the interior of the housing 20. Cradle 100 is also disposed under the first and the second foot receiving stations 30, 40 such that eccentric weight 90, when rotating, may intermittently contact cradle 100. This contact produces a vibration to the first and the second foot receiving stations 30, 40 and, thus, a vibratory sensation to the user's feet disposed thereon. Alternatively, vibration can be achieved by eccentric weight's 90 movement imparting a force through housing 20 and first and second foot receiving stations 30, 40 without contacting cradle 100. In this manner, eccentric weight 90 rotates in an unbalanced manner that results in a vibration of housing 20 and first and second foot receiving stations 30, 40.

In another embodiment of the present invention, at least two motors may be used, each motor being disposed below the respective foot receiving stations 30, 40. Other sources of vibration may be used with the present invention including, but not limited to, a motor 80 mounted to an eccentric cam or a spring or any other device for creating a vibration in the interior of the housing 20. In this manner, the foot massager

10, when vibrating, may provide any number of different therapeutic effects to the user's feet similar to the effects that a professional masseur or spa may produce by changing the orientation of the masseur's hands.

5

Referring again to Fig. 2, the housing 20 may also include a battery compartment 120 disposed in the hollow interior of the housing 20. Battery compartment 120 may hold a number of batteries, a rechargeable nickel cadmium battery, a solar  
10 powered battery or any other suitable portable power supply 95 known in the art. In another exemplary embodiment, housing 20 may also include a power cord (not shown) for electrically connecting the electrical components to an AC power supply.

15 Referring to Fig. 4, housing 20 also has a heater 70. Heater 70 is preferably a heater wire. Preferably, housing 20 has an intermediate plate that has heater 70 disposed winding along its interior in serpentine fashion underneath the first and second foot receiving stations 30, 40. First and second  
20 therapeutic stones 45 and 50 also have a serpentine arcuate channel disposed in the respective first and second therapeutic stones 45 and 50. In this manner, the heater 70 mates with the first and second therapeutic stones 45, 50 to transfer thermal energy through first and second therapeutic stones and to the  
25 user's feet disposed thereon. Heater 70 is sufficient to at least maintain the temperature of the user's feet disposed over the first and second foot receiving stations 30, 40 and first and second therapeutic stones 45 and 50. In another embodiment, a thermal conductive plate (not shown) may also be disposed  
30 along the interior of housing 20 underneath the foot receiving stations 30, 40. The plate (not shown) may also be electrically

connected to power supply 95. In yet another exemplary embodiment of the present invention, a positive thermal coefficient heater or in-line heater may also be disposed in housing 20 and used with the present invention.

5

Heater 70, when energized with power from power supply 95, transfers heat energy through the first and the second foot receiving stations 30, 40 to first and second therapeutic stones 45, 50. In this manner, heater 70 heats therapeutic stones 45, 50 preferably to a maximum temperature of sixty degrees Celsius. Heater 70 may alternatively be applied to surround a bottom side of therapeutic stone 45, 50 to maximize the amount of heat energy that may be communicated through therapeutic stones 45, 50 to the user's feet, soles, skin, muscles or body tissues for a relaxing therapeutic heated stone massage sensation.

A preferred feature of the present invention is that the user may engage in heated stone therapy by placing the user's feet on the respective first and second foot receiving stations 30, 40. The therapeutic stones 45, 50 disposed on first and second foot receiving stations 30, 40 are predominately substantially rectangular in shape and may be in the shape of a foot. Therapeutic stones 45, 50 may have a suitable thickness to transfer thermal energy from heater 70 to the user's feet disposed over the therapeutic stones 45, 50. Therapeutic stones 45, 50 may be marble, granite, travertine, limestone, polished stones, quartz, feldspar, basalt, mica or any other material that will preferably absorb and retain heat energy from heater 70 disposed in housing 20 and transfer heat energy from the therapeutic stones 45, 50 to the user's feet, soles, skin, muscles and body tissues. Therapeutic stones 45, 50 may also

have a substantially flat top and bottom surface such that the therapeutic stones 45, 50 may rest in a suitably sized first and second foot receiving stations 30, 40 on the top of housing 20 for application to the user's soles and feet.

5

Therapeutic stones 45, 50 are illustrated as rectangular and oblong in shape having rounded edges. However, therapeutic stones 45, 50 may be any size and shape suitable for allowing the user's foot to rest comfortably thereon and impart a  
10 therapeutic hot stone massage to the user's feet.

In another exemplary embodiment of the present invention, first and second therapeutic stones 45, 50 may have a raised surface for accommodating an arch of the user's foot. In yet  
15 another exemplary embodiment, therapeutic stones 45, 50 may have rows or columns of striations, dimples, protrusions, raised contours or any combination thereof to allow the user to manipulate his/her foot over the striations, dimples, protrusions or raised contours for an increased heated massage.  
20 Alternatively, therapeutic stones 45, 50 may be formed as one unitary member such that when heated and vibrating are intended to promote circulation of the blood in the feet.

In an alternative embodiment of the present invention,  
25 first and second therapeutic stones 45, 50 also may be coated with medicinal additives such as aloe vera, cortizone, aspirin, lubricating cream, vitamins, such as vitamin C and vitamin E, herb, mineral or any other beneficial material that may be topically applied to the feet. Therapeutic stones 45, 50 may  
30 also be a number of different sized or shaped stones having

separate therapeutic attributes that may rest on a topside of housing 20 or on the lateral sides of the housing.

In another exemplary embodiment of the present invention,  
5 first therapeutic stone 45 may impart a cooling sensation by a cooling device (not shown) disposed in the housing 20. Cooling sensation may be imparted through first therapeutic stone 45 to one of the user's feet, and second therapeutic stone 50 may simultaneously impart a heating sensation to the other foot for  
10 increased therapeutic and massage sensations to the user.

Therapeutic stones 45, 50 are free from sharp edges and have lateral sides that are conducive to either heat transfer or conducive to imparting a cooling sensation to the user's feet.  
15 However, therapeutic stones 45, 50 may be any suitable shape or size to place the user's feet on top of the therapeutic stones.

Referring again to Fig. 1, housing 20 may also have one or more discrete bumps, striations, contours, dimples or any  
20 combination thereof disposed top surface 105 that is between first and second foot receiving stations 30, 40. In this manner, the user may further massage the feet on these bumps, striations, contours, dimples or any combinations thereof.

25 Top surface 105 may also have a heating device. Preferably, the heating device is an infrared device 110. Also preferably, infrared device 110 is disposed on top surface 105 and between first and second foot receiving stations 30, 40. Infrared device 110 may be electrically connected to power  
30 supply 95. Infrared device 110 may be any device that emits infrared radiation to the user's feet, soles, skin and body

tissues. When supplied with electrical power from power source 95, infrared device 110 produces infrared radiant heat.

Infrared radiant heat is communicated to the user's feet through an infrared light emitting plate 115 on top surface 105 of

5 housing 20. The infrared radiant heat is transmitted through the infrared light emitting plate 115 to stimulate and increase the blood circulation of the feet and the soles of the user. Infrared light emitting plate 115 may be a smooth shaped member that is non-abrasive so as to be readily applied to the user's  
10 feet without producing any cuts, scratches or abrasions. Infrared light emitting plate 115 may also be vibrated by vibrating mechanism 65. Infrared device 110 may be any device known in the art that emits photons in the infrared spectrum through infrared light emitting plate 115 to the user's feet and  
15 soles.

Referring to one embodiment of Fig. 5, heater 70 and motor 80 are electrically connected to power supply 95 by a wire 142. In a preferred embodiment, a first and a second capacitors 135,  
20 140 may be electrically connected between motor 80 and heater 70 to decrease the amount of voltage to the motor and the heater from power supply 95. Electrically connected between power supply 95, first and second capacitors 135, 140, motor 80, and heater 70 is a first switch 145 and a second switch 146. First  
25 switch 145 and a second switch 146 may be any switch known in the art that preferably has at least two positions. When first switch 145 is in the first position, heat sensations will be imparted to the user through first and second therapeutic stones 45, 50, and preferably also infrared device 110. When switch  
30 145 is in the second position, no heat sensations will be imparted to the user. When second switch 146 is in the first

position, the foot massager 10 will impart a vibratory massage to the user. When second switch 146 is in the second position, no vibratory sensations will be imparted to the user.

5           In operation, when the user desires vibratory sensations to be imparted to the user's feet, user depresses second switch 146 to the first position. In the first position, power flows from power supply 95 across switch 145 to motor 80. Motor 80 rotates output shaft 85 and, in turn, eccentric weight 90. Eccentric  
10 weight 90 rotates and contacts cradle 100 in an unbalanced manner thereby imparting an unbalancing force to vibrate first and second foot receiving stations 30, 40 to provide a vibration to first and second therapeutic stones 45, 50.

15           When the user desires heated stone therapy delivered from first and second therapeutic stones 45, 50 to the user's feet disposed on first and second foot receiving stations 30, 40, the user moves first switch 145 to the second position. When the switch 145 is in the second position, power is transferred from  
20 power supply 95 across switch 145 to heater 70 disposed in the first and second therapeutic stones 45, 50. Heater 70 is energized from power supply 95 and power is converted into heat energy that is transmitted through first and second therapeutic stones 45, 50 to the user's feet.

25

          In another embodiment of the present invention, when both first switch 145 and second switch 146 are switched to the on position, power is transferred from power supply 95 across switch 145 to heater 70 and infrared device 110, thereby  
30 energizing the infrared device and simultaneously the heater for infrared therapy and hot stone therapy to the user's feet.

Housing 20 has a power cord 150 for charging of the battery. Alternatively, a plug (not shown) may be connected to power cord 150 for providing direct power to motor 80 and heater 70. First and second switches 145, 146 may also be electrically connected to an electric circuit on a printed circuit board 155 that is optionally mounted in or along the interior of housing 20. In an alternative embodiment, board 155 may be mounted on a motor casing (not shown) that encapsulates motor 80.

10

In another exemplary embodiment of the present invention illustrated in Fig. 7, foot massager 10 may also have a remote control unit 200 for remote operation of the foot massager. Housing 20 has a receiver 205. Receiver 205 may be any suitable receiver known in the art. Receiver 205 receives a wireless communication protocol signal, for example, an infrared, a radio frequency, or other type of signal, either analog or digital, from a transmitter (not shown) in remote control unit 200 for remote operation of foot massager 10. Receiver 205 is electrically connected to the operational components of foot massager 10 disposed in housing 20. Remote control unit 200 remotely controls the various functions/operations of the foot massager 10 such as the heater, infrared therapy device, vibration device, cooling device or any combinations thereof.

25

In still another exemplary embodiment of the present invention illustrated in Fig. 8, remote control unit 200 may be connected to any surface of the housing 20 by a connector 210 to obviate the user from losing or misplacing the remote control unit. Connector 210 may include, for example, a nylon cord, a sheathed wire, a chain, a coiled cord, an insulated electrical

30



wire, a disengageable connector, a hook and loop fastener, a tether, a wire, a reel or any combinations thereof. Connector 210 may be connected, preferably at one end, to remote control unit 200 and, preferably at the other opposite end, to housing 5 20 of foot massager 10.

Referring to Fig. 9, a schematic electrical diagram for foot massager 10 is shown. A control circuit is generally designated as reference numeral 320. The control circuit 320 10 may be any programmable integrated circuit programmed to control the operation of foot massager 10 in accordance with a user programmed input 310. The integrated circuit includes, but is not limited to, a microprocessor or an analog circuit. Control circuit 320 is operatively connected to input 310 by a suitable 15 alternating current tap. Input 310 may include a remote control, a touch pad, discrete switches, rotary switches or any other suitable input known in the art. The control circuit 310 has an on-off switch 322, a level adjuster switch 324 and a timed operation sequence switch 326 to control the outputs of 20 foot massager 10 in response to input 310.

The control circuit 320 preferably controls the outputs of foot massager 10 including heater controls 330, vibrating controls 340, infrared controls 350, ionic controls 360, cooling 25 device controls 370, or any combinations thereof. The control circuit 320 may also be connected to a timer/buzzer control (not shown) that may be set to alert the user to a pre-selected time limit. The control circuit 320 is also, preferably connected to a display 370 by the alternating current tap. Display 370 may 30 include a LCD display (not shown), a light emitting diode (not shown), or any other suitable indicator known in the art, to

alert the user to various pre-selected settings of foot massager 10.

Referring again to Fig. 1, through positioning of the  
5 user's feet on first and second therapeutic stones 45, 50, foot  
massager 10 produces a portable, vibrating, therapeutic hot  
stone massage to the user's feet, soles and skin tissues  
comparable to a masseur's spa or finger like massage. The  
sensations imparted by massager 10 are comparable to the  
10 stimulus of a therapeutic, deluxe masseur that can be found in  
an expensive spa. One skilled in the art should appreciate that  
the weight of first and second therapeutic stones 45, 50 acts to  
dampen the vibration produced by vibrating mechanism 65 and  
produces a more relaxing vibrating sensation to the user than  
15 the chaotic shaking of the prior art foot massagers. The user  
can adjust foot massager 10 to provide a wide variety of massage  
sensations including infrared therapy and heated stone therapy.

It should be understood that the foregoing description is  
20 only illustrative of the present invention. Various alternatives  
and modifications can be devised by those skilled in the art  
without departing from the invention. Accordingly, the present  
invention is intended to embrace all such alternatives,  
modifications and variances.

**CLAIMS:**

1. A foot massager device comprising  
a housing having a top surface, a bottom surface and an interior;  
at least one stone surface positioned on the top surface of the housing and  
adapted to receive heat energy.
2. A foot massager device comprising  
a housing having a top surface, a bottom surface and an interior;  
at least one stone surface positioned on the top surface of the housing and adapted to  
vibrate.
3. A device according to claim 1, further comprising  
an electrical heat energy source adapted to generate said heat energy; and  
heat transfer elements for transferring said heat energy to said stone  
surface.
4. A device according to claim 2, further comprising  
a vibration source adapted to generate vibrational forces; and  
force transfer elements for transferring said vibrational forces to said stone  
surface.
5. A foot massager device comprising  
a housing having a top surface, a bottom surface and an interior;  
at least one stone surface positioned on the top surface of the housing and adapted  
to receive heat energy and adapted to vibrate.
6. A device according to claim 5, further comprising  
an electrical heat energy source adapted to generate said heat energy;  
heat transfer elements for transferring said heat energy to said stone  
surface; and  
a vibration source adapted to generate vibrational forces; and  
force transfer elements for transferring said vibrational forces to said stone  
surface.
7. A device according to claim 6, comprising  
at least one eccentrically rotating electric motor positioned in said housing  
and adapted to produce said vibrational forces.
8. A device according to claim 6, further comprising  
an electronic controller for selectively controlling heating and vibration of  
said stone surface.
9. A device according to claim 8, further comprising  
a remote controller for remotely and selectively controlling heating and  
vibration of said stone surface.

10. A device according to claim 6, further comprising  
a cooling device for cooling the temperature of said stone surface.
11. A device according to claim 6, further comprising  
an ion generating source for emitting ions from said device to a user's  
body part.
12. A device according to claim 6, wherein  
said heat energy source is an infra red light emitter.

Application number / numéro de demande: 2440780

Figures: 1-2-3-4-6-7-8

Pages: \_\_\_\_\_

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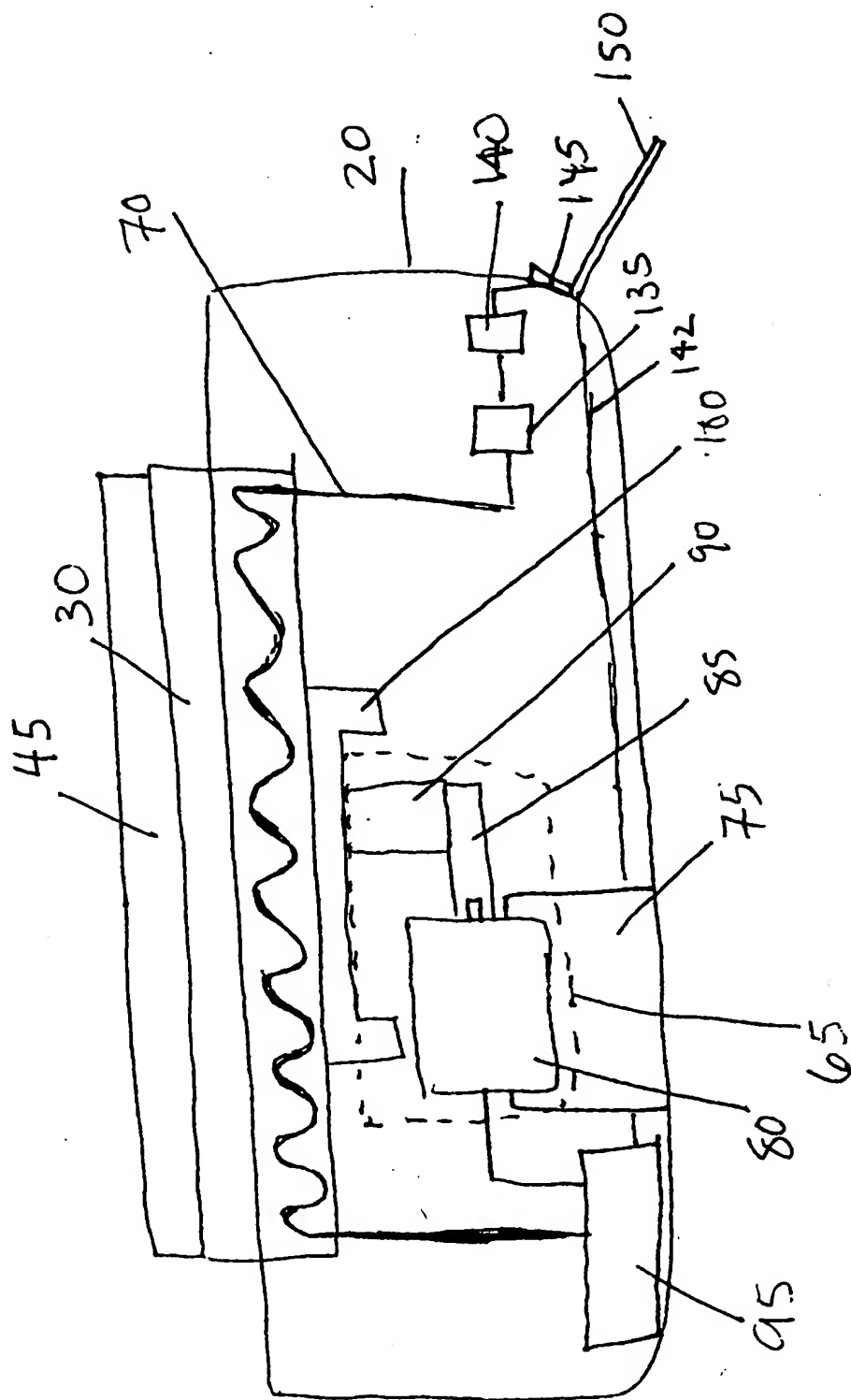
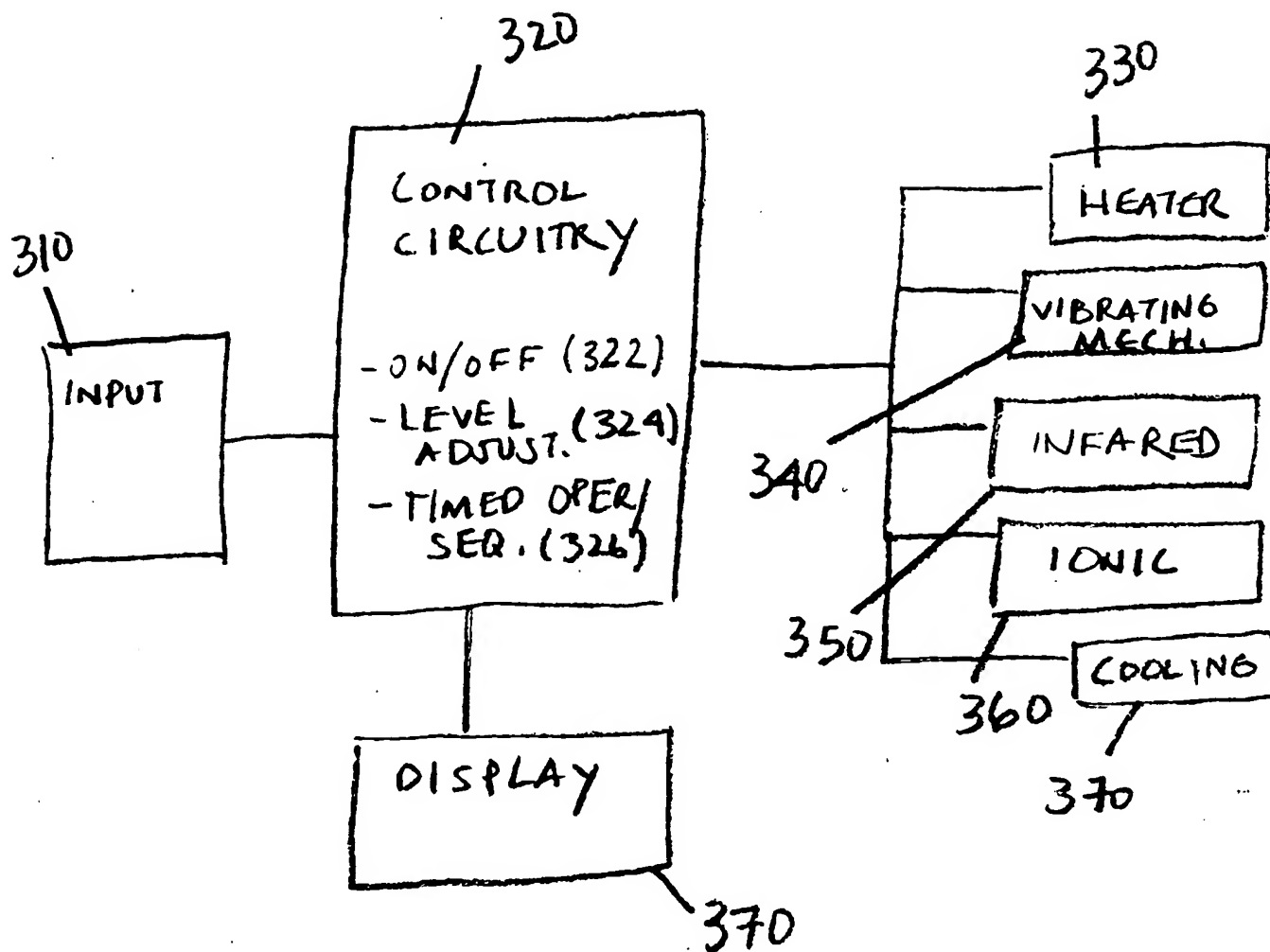


FIG. 5.

FIG. 9